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Commentary on Kraiss *et al.*: Read the label - improving the applicability of systematic reviews by coding and analysis of intervention elements

While controlled trials establish an intervention's effectiveness, poor intervention descriptions can obscure substantial variation. To address this problem, Kraiss and colleagues extend the systematic review process with several additional steps. Although important for clinical and policymaking in addiction, the considerable effort needed will be a barrier to its widespread application.

While controlled trials are crucial for establishing an intervention's effectiveness, knowing what was assessed and what it was compared to is often mysterious. Trustworthy replication and application both require a sufficiently clear 'recipe' for the experimental and control interventions that other researchers and clinicians could use them. This problem of description is further complicated our fuzzy language: phrases such as 'brief physician advice', 'nurse counselling', 'self-help' and 'usual care' can each give the illusion of a singular, well-delineated intervention. The study by Kraiss *et al.* [1] demonstrates just how illusory this can be for both intervention and the usual care. More importantly, they demonstrate how the elements of intervention and usual care might be unravelled. Such methods are vital for both research progress and for real-world application.

Poor intervention labels and descriptions can obscure substantial variation, as has been described in numerous other clinical areas, such as cardiac rehabilitation [2], stroke rehabilitation [3], alcohol reduction interventions [4] and antidepressant tapering [5], etc. The first hurdle is the poor description of interventions in published controlled trials. The Template for Intervention Description and Replication (TIDieR) [6] was developed to provide trial authors with a checklist of essential items needed to describe their interventions, but is being increasingly applied to the control group, such as usual care [7]. The key elements the TIDieR checklist asks to include in the intervention description are: brief name, why, what (materials), what (procedure), who provided, how, where, when and how much, tailoring, modifications, how well (planned) and how well (actual).

To address the problems of unclear intervention variation, Kraiss *et al.* have extended the usual systematic review process with several additional steps. First, they extract detailed information on the

components of both the intervention and 'usual care'. Often this required writing to the authors to obtain the missing details, but was an essential first step. Next, these elements were coded (using the behaviour change taxonomy) to standardize the terms and elements. Then, to estimate the true incremental size of the effects compare to minimal usual care, the authors use a novel meta-regression using these extracted components as predictors.

This is an important new method for clinical and policymaking in addiction, which unravels two crucial components that are obscured when reviews simply pool all intervention and control group comparisons. First, the experimental interventions will vary considerably in their intensity and duration of the different components, and this variation needs to be accounted for in the meta-analysis. Secondly, 'usual care' is not always no intervention, and may have some impact. Hence, estimating the effects of the different trial 'usual care' groups is important to avoid spurious underestimates of the experimental interventions' effects. These steps—extracting the intervention from numerous documents, writing to authors, coding the intervention guided by the Behaviour Change Technique (BCT) taxonomy and regression analysis—represent much greater work than the usual systematic review, but provides for a much more nuanced analysis of the probable effectiveness of different variants of the intervention when compared with different variants of usual care. A main risk is that there will be too few trials with complete interventions descriptions to allow a useful analysis. The main limitation is that the meta-regression comparisons may be confounded by other factors such as different population and different outcome measurements, etc.

The considerable effort needed from both reviewers and authors to obtain this more nuanced analysis will be a barrier to its widespread application [8]. However, given the global implications for clinical and policy decisions, such efforts will be justified. The effort involved in such an extensive synthesis is still relatively small compared with the effort and costs in conducting the primary trials. We should therefore work towards ensuring that the extra efforts required get appropriate recognition and is resourced sufficiently to enable this important work to be carried out.

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Behavioural taxonomy, commentary, intervention effectiveness, meta-analysis, replication, systematic review methods

AUTHOR CONTRIBUTIONS

Paul Glasziou: Conceptualization (equal); writing—original draft (lead); writing—review and editing (equal). **Nick Zwar:** Conceptualization (equal); writing—original draft (supporting); writing—review and editing (equal).

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DECLARATION OF INTERESTS

None.

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